

PROCEEDINGS  
OF THE  
BIOLOGICAL SOCIETY OF WASHINGTON

---

NEW ENTOCYTHERID OSTRACODS OF THE GENERA  
*ANKYLOCYTHERE* AND *DACTYLOCYTHERE*<sup>1</sup>

BY H. H. HOBBS III

*Department of Zoology, Indiana University,  
Bloomington, Indiana*

Three new species of entocytherid ostracods belonging to the genera *Ankylocythere* and *Dactylocythere* are described from Indiana, Kentucky, and Mississippi, and a description of the previously unknown female of *D. ungulata* (Hart and Hobbs, 1961), together with additional locality records for it, are included. Keys to the previously described members of the two genera are available in Hobbs (1966) and Hobbs and Hobbs (1970).

I am grateful to Dr. Horton H. Hobbs, Jr. for his assistance in the preparation of this manuscript and to Dr. David G. Frey for his helpful criticisms. Supported in part by NSF Grant GB-4719 to J. F. Fitzpatrick, Jr., and NSF Grant GB-7585 to Gulf Coast Research Laboratory.

***Ankylocythere burkeorum* new species**

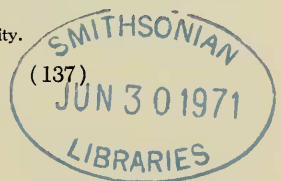
(Fig. 1a-c)

*Male*: Eyes pigmented, situated one-fourth shell length from anterior margin. Shell (Fig. 1c) subovate and somewhat vaulted dorsally at midlength; margins entire; submarginal setae scarce, absent dorsally, present anteriorly, posteriorly, and ventrally. Range of shell size of three specimens recorded in Table 1.

Copulatory complex (Fig. 1a) with elongate peniferum; ventral portion of peniferum slightly enlarged, terminating distally in cleft; anteroventral portion drawn into acute prominence; penis small, situated in distal seventh of peniferum; clasping apparatus (Fig. 1a, b) clearly divisible into vertical and horizontal rami, former approximately twice length of latter; horizontal ramus slender, bearing single tooth-like prominence on

---

<sup>1</sup> Contribution No. 854, Department of Zoology, Indiana University.



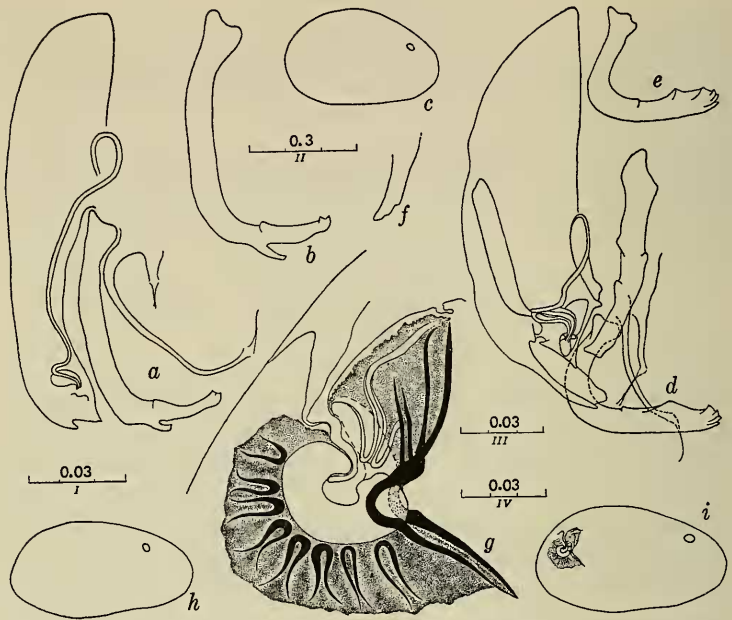


FIG. 1a-c. *Ankylocythere burkeorum* new species; FIG. 1d-i. *Dactylocythere ungulata* Hart and Hobbs; a, d, mesial views of entire male copulatory complexes; b, e, clamping apparatus; f, finger guard; c, h, lateral views of right valve of males; i, lateral view of right valve of female; g, female genitalia; a, b to scale I; c, h, i to scale II; d, e, f to scale III; g to scale IV; scales in mm.

internal border proximal to midlength; distal extremity terminating in 2 teeth; external border bearing talon arising proximal to, or at level of, tooth on internal border and extending subparallel to horizontal ramus; talon reaching distally  $\frac{1}{3}$  to  $\frac{1}{6}$  distance between distal margin of base and apex of ramus; external and internal borders of vertical ramus entire, with dorsal fifth directed anterodorsally; dorsal and ventral fingers slender, former terminating in 2 setae, latter in single seta.

*Female:* Unknown.

*Type-locality:* Collected from crayfish in burrows along bank of Tallahatta Creek, near Duffee, Newton County, Mississippi.

*Disposition of types:* The holotypic male and dissected male paratype are deposited in the National Museum of Natural History (Smithsonian Institution), nos. 135617 and 135618, respectively. Paratypes are in the collection of the author.

*Hosts:* *Cambarus diogenes diogenes* Girard and *Cambarus striatus* Hay.

TABLE 1. Measurements (in millimeters).

	Holotype	Males	Allotype	Females
<i>Ank. burkeorum</i>				
Number of specimens		3		0
Length (range)	0.36	0.35-0.36	-	-
mean		0.36		
Height (range)	0.22	0.21-0.22	-	-
mean		0.21		
<i>D. susanae</i>				
Number of specimens		6		10
Length (range)	0.52	0.48-0.52	0.55	0.54-0.58
mean		0.50		0.56
Height (range)	0.27	0.26-0.29	0.30	0.30-0.37
mean		0.27		0.33
<i>D. charadra</i>				
Number of specimens		3		3
Length (range)	0.49	0.48-0.49	0.51	0.48-0.51
mean		0.48		0.49
Height (range)	0.28	0.27-0.28	0.33	0.29-0.33
mean		0.27		0.31

*Entocytherid associates*: *Entocythere internotalus* Crawford, 1959, *Uncinocythere simonshi* (Hobbs and Walton, 1960), and *Ornithocythere gypodes* Hobbs III, 1970 (Noxubee County, Mississippi).

*Range*: In addition to the type locality, this species is known from crayfish burrows in roadside ditch 1.0 miles W of junction of State Route 14 and U.S. Hwy. 45 on State Route 14, Noxubee County, Mississippi.

*Relationships*: *Ankylocythere burkeorum* has its closest affinity with *Ankylocythere copiosa* (Hoff, 1942) in that the vertical ramus of the clasping apparatus is long, the talon of moderate length, and the peniferum is bifid terminally. *A. burkeorum* can be distinguished from this species by the shallow bifid ventral portion of the peniferum, the more distally located penis, and by the slender horizontal ramus of the clasping apparatus. *Ankylocythere harmani* Hobbs, 1966 and *A. hobbsi* (Hoff, 1944) also are close relatives. The similarities are noted in the long vertical ramus of the clasping apparatus. *A. burkeorum* can be distinguished from these species by possessing a bifid ventral margin of the peniferum rather than an undulating one. The talon is much shorter and the horizontal ramus of the clasping apparatus is more slender in *A. burkeorum* than in other species. It also differs from *A. hobbsi* by lacking a thickened area in the distal portion of the horizontal ramus of the clasping apparatus.

*Etymology*: It is a pleasure to name this ostracod in honor of my good

friends and collectors of this species, Elizabeth and William David Burke.

***Dactylocythere susanae* new species**

(Fig. 2a-f)

*Male*: Eyes pigmented, located approximately one-fourth shell length from anterior margin. Shell (Fig. 2d) subovate, with greatest height posterior to midlength; margins entire; submarginal setae present in limited numbers anteriorly, posteriorly, and ventrally. Sternal spine lacking. Range of shell size of six specimens recorded in Table 1.

Copulatory complex (Fig. 2a) possessing straight finger guard, terminating distally without tubercles, anterior margin incised short distance proximal to apex; peniferum elongate with distal anteriorly directed flange; posteroventral portion tapering to semi-acute prominence; accessory groove long, extending one-third its length beyond dorsal extremity of spermatic loop; apex of peniferal groove wider than least diameter of vertical ramus of clasping apparatus; penis L-shaped, greater than half width of peniferum, and situated in ventral third of peniferum; clasping apparatus (Fig. 2b, c) extending ventrally beyond peniferum, nearly C-shaped, not clearly delimited into horizontal and vertical rami, and with proximal and distal portions directed at angle of approximately 75 degrees; external border of vertical ramus strongly convex posteriorly, external and internal borders entire; internal border of horizontal ramus bearing three teeth, proximal one most pronounced and rounded, distal one small and subacute, and that between almost obsolete; distal extremity of horizontal ramus terminating in three denticles; dorsal and ventral fingers slender, former terminating distally in two setae, latter in single seta.

*Triunguis female*: Eyes pigmented, situated one-fourth shell length from anterior margin. Shell (Fig. 2e) subovate with entire margins; range of shell size of 10 specimens recorded in Table 1; submarginal setae like those of male. Genital complex (Fig. 2f) posterodorsal and consisting of coiled J-shaped rod and amiculum; upper portion of J-shaped rod bifid with genital papilla situated between rami; amiculum surrounding coil, supported by U-shaped ribs; rami of ribs extending away from coil; anterodorsalmost pair of supporting ribs with one ramus extending dorsally and other anteriorly.

*Type-locality*: Murray Spring Cave, Orange County, Indiana, SE $\frac{1}{4}$ , NW $\frac{1}{4}$ , NW $\frac{1}{4}$ , Sec. 6, T. 1 N, R. 1 E (Paoli Quadrangle).

*Disposition of types*: The holotypic male, allotype, and dissected male paratype are deposited in the National Museum of Natural History (Smithsonian Institution), nos. 135619, 135620, and 135621, respectively. Paratypes are in the collections of C. W. Hart, Jr. (1 ♂, 1 ♀), the Smithsonian Institution (1 ♂, 2 ♀), and the author (1 ♂, 10 ♀).

*Hosts*: *Cambarus laevis* Faxon from the type locality, Buckner's Cave; Connerly's Cave, Fredericksburg Cave, Weaver Springs Cave, Jack's Defeat Creek from Indiana; *C. tenebrosus* Hay, *Orconectes inermis inermis* Cope, and *O. australis packardi* Rhoades from Kentucky.

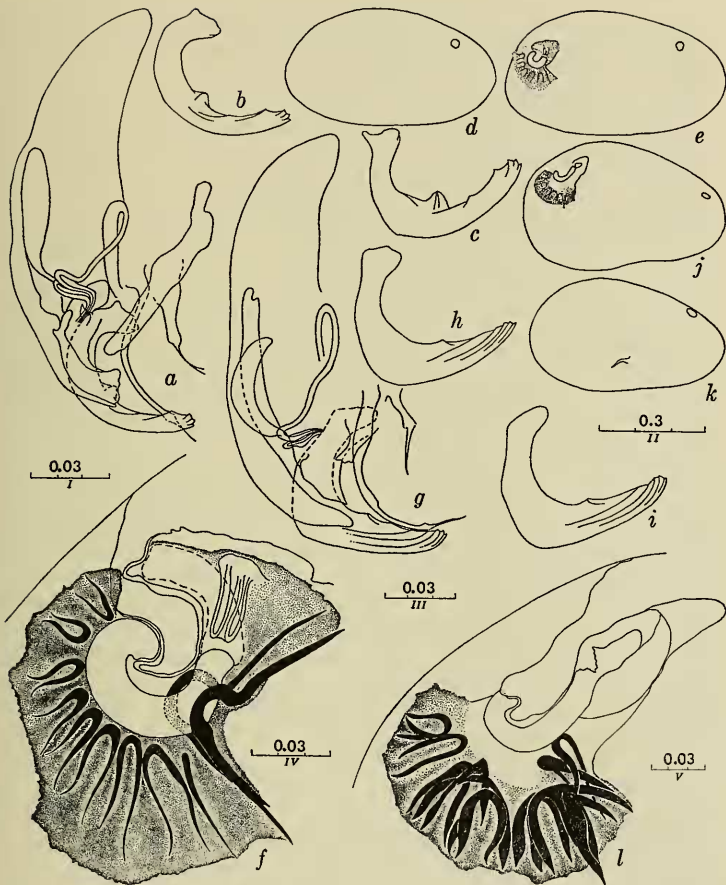


FIG. 2a-f. *Dactylocythere susanae* new species; FIG. 2g-l. *Dactylocythere charadra* new species; a, g, mesial views of entire male copulatory complexes; b, c, h, i, clasp apparatus of males; d, k, lateral views of right valve of males; e, j, lateral views of right valve of females; f, l, female genitalia; a, b, c, to scale I; d, e, j, k to scale II; g, h, i to scale III; f to scale of IV; l to scale V; scales in mm.

*Entocytherid associates*: INDIANA: *Donnaldsoncythere donnaldsonensis* (Klie, 1931) from the type locality, Buckner's Cave, Connerly's Cave, Fredericksburg Cave and Jack's Defeat Creek; *Uncinocythere simondsi* from Buckner's Cave, Weaver Springs Cave, and Jack's Defeat Creek; KENTUCKY: *Dactylocythere ampliakis* Hart and Hart, 1966 (Cooch

Webb Cave); *Dactylocythere ungulata* (Hart and Hobbs, 1961) from Pine Hill Cave; an undescribed species of *Dactylocythere* from Bandy and Cumberland Crystal Caves (Sloan's Valley Cave); and *Sagittocythere barri* (Hart and Hobbs, 1961) from Cooch Webb Cave.

*Range:* In addition to the type locality, *Dactylocythere susanae* has been collected from the following localities in INDIANA: Buckner's Cave, Monroe County, NE $\frac{1}{4}$ , SW $\frac{1}{4}$ , SE $\frac{1}{4}$ , Sec. 17, T. 8 N, R. 2 W (Whitehall Quadrangle); Connerly's Cave, Lawrence County, NE $\frac{1}{4}$ , SW $\frac{1}{4}$ , SE $\frac{1}{4}$ , Sec. 4, T. 3 N, R. 2 W (Huron Quadrangle); Fredericksburg Cave, Washington County, SE $\frac{1}{4}$ , NW $\frac{1}{4}$ , SE $\frac{1}{4}$ , Sec. 4, T. 1 S, R. 3 E (Fredericksburg Quadrangle); Weaver Springs Cave, Monroe County, NE $\frac{1}{4}$ , NE $\frac{1}{4}$ , SE $\frac{1}{4}$ , Sec. 19, T. 7 N, R. 2 W (Stanford Quadrangle); Jack's Defeat Creek, Bloomington, Monroe County, 1.5 miles NE of junction of Woodyard Road and Curry Pike on Woodyard Road; KENTUCKY: Bandy Cave, 3.0 miles S of Irvington, Breckinridge County; Cooch Webb Cave, 0.4 miles N of Bear Wallow, Hart County; Cumberland Crystal Cave at Sloan's Valley, Pulaski County; Pine Hill Cave, at Pine Hill on U.S. Hwy. 25, Rockcastle County.

*Relationships:* *Dactylocythere susanae* has its closest affinities with *D. steevesi* (Hart and Hobbs, 1961) and *D. ungulata*. All three species possess elongate penifera which taper ventrally to terminate in a flange and a semi-acute prominence at anteroventral angle. Likewise, all possess a rather straight finger guard, which terminates distally without tubercles. *D. susanae* can easily be distinguished from these two species in that it bears an accessory groove which extends dorsally well beyond the level of the spermatic loop. Likewise, the internal border of the horizontal ramus of the clasping apparatus of *D. susanae* bears a large proximal tooth which is greatly reduced in the other two species. *D. susanae* is also related to *D. arcuata* (Hart and Hobbs, 1961). The ventral portion of the peniferum in both is markedly similar, and the accessory grooves extend dorsally above the spermatic loop. *D. arcuata*, however, has a very slender elongate finger guard and lacks an enlarged proximal tooth on the horizontal ramus of the clasping apparatus.

*Etymology:* I am pleased to name this species in honor of my wife, Susan Krantz Hobbs.

### ***Dactylocythere charadra* new species**

(Fig. 2g-l)

*Male:* Eyes pigmented, located approximately one-fifth shell length from anterior margin. Shell (Fig. 2k) subovate with greatest height posterior to midlength; margins entire; submarginal setae present in limited numbers anteriorly, ventrally, and posteriorly, absent dorsally. Sternal spine present, short, directed posteroventrally. Shell size of 3 specimens recorded in Table 1.

Copulatory complex (Fig. 2g) possessing finger guard tapering from broad base and flaring distally in 3 tubercles, posterior margin markedly concave; peniferum elongate, posteroventral portion gently rounded;

accessory groove short, not reaching ventralmost level of spermatic loop; peniferal groove very long, extending dorsally beyond level of dorsalmost portion of spermatic loop; apex of peniferal groove narrower than least diameter of vertical ramus of clasping apparatus; penis horizontally situated in distal one-fourth of peniferum and slightly curved ventrally at distal end, less than half width of peniferum; clasping apparatus (Fig. 2h, i) extending ventrally beyond peniferum and clearly divisible into horizontal and vertical rami, proximal and distal portions directed at angle of approximately 80 degrees; external border of vertical ramus with subangular bend distally, otherwise external borders of both rami and internal border of vertical ramus entire; internal border of horizontal ramus with prominent, acute, proximal tooth and two more distal rudimentary ones; apex of ramus terminating in three acute denticles; both dorsal and ventral fingers slender and terminating in single seta.

*Triunguis female*: Eyes pigmented, located approximately one-seventh shell length from anterior margin. Shell (Fig. 2j) subovate with greatest height posterior to midlength; ventral margin with shallow concavity anterior to midlength, otherwise entire; submarginal setae like those of male. Genital complex (Fig. 2l) located posterodorsally, composed of distinct J-shaped rod and amiculum; amiculum consisting of amorphous mass suspended from lower third of J and supported by U-shaped ribs; anteriormost pair of supporting ribs with rami extending anteriorly; dorsal portion of J-shaped rod bifid, appearing cracked and angled anterodorsally, with no apparent genital papilla.

*Type-locality*: Sinking Creek in "Hoss Cove" near Johnson City, Washington County, Tennessee. This species is known from no additional localities.

*Disposition of types*: The male holotype and allotype are deposited in the National Museum of Natural History (Smithsonian Institution) no. 135622. Paratypes are in the collection of C. W. Hart, Jr. (1 ♂, 1 ♀), and the author (2 ♂, 1 ♀).

*Host*: *Cambarus* sp.

*Entocytherid associates*: *Dactylocythere falcata* (Hobbs and Walton, 1961); *Donnaldsoncythere* sp.; and *Thermastrocythere rioja* (Hoff, 1943).

*Relationships*: *Dactylocythere charadra* is most closely allied to *D. chalaza* (Hobbs and Walton, 1962), from which it differs most conspicuously by the much elongated peniferal groove; it can further be distinguished from *D. chalaza* by the presence of 2 reduced teeth located distally on the internal border of the horizontal ramus of the clasping apparatus; *D. charadra* possesses a sternal spine suggesting a not too remote relationship to other members of the genus that possess this character: *D. amicula* Hart and Hart, 1966; *D. brachytrix* Hobbs and Walton, 1966; *D. chalaza*; *D. Chelomata* (Crawford, 1961); *D. daphnoides* (Hobbs, 1955); *D. exoura* Hart and Hart, 1966; *D. pachysphurata* Hobbs and Walton, 1966; *D. runki* (Hobbs, 1955); *D. spinata* Hobbs and Walton, 1970; *D. xystroides* Hobbs and Walton, 1963. Although closely allied, *D. charadra* may be distinguished from these species by

the distinct characters of the accessory groove, finger guard, shape of peniferum, and clasping apparatus.

*Etymology*: Charadra (Greek) = mountain stream, referring to type-locality where this species was collected—a swift, rocky bottomed stream in a mountainous area.

***Dactylocythere ungulata* (Hart and Hobbs, 1961)**

(Fig. 1d-i)

*Entocythere ungulata* Hart and Hobbs, 1961: 177, figs. 9-11.

*Dactylocythere ungulata*.—Hart, 1962: 131.

At the time of the original description, the female of the species was unknown and thus was omitted from the description. Subsequently, many specimens (both male and female) have been collected from two additional localities in Kentucky and Tennessee. The acquisition of these specimens permits a description of the *triunguis* female of the species. The male of the species from Pine Hill Cave, Kentucky is also illustrated here (Fig. 1d, e, f, h).

*Triunguis female*: Eyes pigmented, situated one-fifth shell length from anterior margin. Shell (Fig. 1i) subovate with margins entire; length—0.49 mm, range and average of 10 specimens, 0.46-0.53 mm and 0.49 mm, respectively; height—0.28 mm, range and average of 10 specimens, 0.26-0.32 mm and 0.28 mm, respectively; submarginal setae present in limited numbers anteriorly, ventrally, and posteriorly, absent dorsally; genital complex (Fig. 1g) situated posterodorsally, composed of coiled J-shaped rod and amiculum; amiculum consisting of amorphous mass surrounding subcircularly curved rod and supported by U-shaped ribs; rami of ribs radiating from rod; anterodorsalmost pair of supporting ribs with one ramus extending dorsally, other anteriorly; pair of accessory ribs parallel and posterior to dorsal arms of anterodorsal supporting ribs; upper portion of J-shaped rod bifid, with genital papilla positioned between rami.

*Range*: In addition to the three localities reported by Hart and Hobbs this species has been collected from: Pine Hill Cave at Pine Hill on U.S. Hwy. 25, Rockcastle County, Kentucky (on *Orconectes australis packardi*); small stream along County Route 42, 0.5 miles S Kentucky-Tennessee state line in NE corner of Pickett County, Tennessee (on *Cambarus tenebrosus*).

*Entocytherid associates*: In addition to those associates reported by Hart and Hobbs, *Dactylocythere ungulata* has been found with *D. susanae* in Pine Hill Cave, Kentucky.

LITERATURE CITED

- CRAWFORD, EDWARD A., JR. 1959. Five new ostracods of the genus *Entocythere* (Ostracoda, Cytheridae) from South Carolina. Univ. South Carolina Publ., Ser. III, Biol. 2: 149-189, pls. 1-5.



- . 1961. Three new species of the genus *Entocythere* (Ostracoda, Cytheridae) from North and South Carolina. Amer. Midl. Nat. 65: 236-245.
- HART, C. W., JR. 1962. A revision of the ostracods of the family Entocytheridae. Proc. Acad. Nat. Sci. Philadelphia 114: 121-147, figs. 1-18.
- AND DABNEY G. HART. 1966. Four new entocytherid ostracods from Kentucky, with notes on the troglobitic *Sagittocythere barri*. Notulae Naturae 338: 1-10, 13 figs.
- AND HORTON H. HOBBS, JR. 1961. Eight new troglobitic ostracods of the genus *Entocythere* (Crustacea, Ostracoda) from the eastern United States. Proc. Acad. Nat. Sci. Philadelphia 113: 173-185, 32 figs.
- HOBBS, HORTON H., JR. 1955. Ostracods of the genus *Entocythere* from the New River System in North Carolina, Virginia, and West Virginia. Trans. Amer. Micros. Soc. 74: 325-333, 10 figs.
- . 1966. An illustrated key to the species of the genus *Ankylocythere* with a description of a new species from Louisiana (Ostracoda, Entocytheridae). Proc. Louisiana Acad. Sci. 29: 67-75, 18 figs.
- AND H. H. HOBBS III. 1970. New entocytherid ostracods with a key to the genera of the subfamily Entocytherinae. Smithsonian Contributions to Zoology 47: 1-19.
- AND MARGARET WALTON. 1960. Three new ostracods of the genus *Entocythere* from the Hiwassee drainage system in Georgia and Tennessee. Journ. of Tennessee Acad. Sci. 35(1): 17-23, 20 figs.
- . 1961. Additional new ostracods from the Hiwassee drainage system in Georgia, North Carolina, and Tennessee. Trans. Amer. Micros. Sci. 80(4): 379-384, 8 figs.
- . 1962. New ostracods of the genus *Entocythere* from the Mountain Lake Region, Virginia (Ostracoda, Entocytheridae). Virginia Journ. Sci., new series 13(2): 42-48, 12 figs.
- . 1963. Three new ostracods (Ostracoda, Entocytheridae) from the Duck River drainage in Tennessee. Amer. Midl. Nat. 69(2): 456-461, 10 figs.
- . 1966. A new genus and six new species of entocytherid ostracods (Ostracoda, Entocytheridae). Proc. U.S. Nat. Mus. 119 (3542): 1-12, 2 figs.
- . 1970. New entocytherid ostracods from Tennessee and Virginia. Proc. Biol. Soc. Washington 82: 851-863, 3 figs.
- HOBBS, H. H. III. 1970. New entocytherid ostracods of the genus *Ornithocythere* and the description of a new genus. Proc. Biol. Soc. Washington 83(15): 171-182.
- HOFF, CLAYTON C. 1942. The subfamily Entocytherinae, a new subfamily of fresh-water cytherid ostracods with descriptions of

- two new species of the genus *Entocythere*. Amer. Midl. Nat. 27: 63-73, 1-13 figs.
- . 1943. Two new ostracods of the genus *Entocythere* and records of previously described species. Journ. Washington Acad. Sci. 33(9): 276-286, 2 figs.
- . 1944. New American species of the ostracod genus *Entocythere*. Amer. Midl. Nat. 32(2): 327-357, 33 figs.
- KLIE, W. 1931. Campagne spéologique de C. Bolivar et R. Jeannel dans l'Amérique du Nord (1928). 3. Crustacés ostracodes. - Biospeologica: Archiv. Zool. Exp. et Gen. 71: 333-344, 20 figs.